Serial No.: 10/743,239
Amendment Dated August 30, 2006
Reply to Office action of May 8, 2006.

REMARKS

In the Office Action, claims 1-13 and 15-38 were rejected, and claim 14 was objected to as being dependent on a rejected base claim. In view of the remarks made herein, the Applicants believe that claims 1-38 recite subject matter patentable over the cited art. Reconsideration and allowance of claims 1-38 are requested.

Rejections Under 35 U.S.C. §102(e)

Claims 1-9, 11-12, 18-19, 22-28, and 34-35 were rejected under 35 U.S.C. §102(e) as being anticipated by Johnson et al. US Patent 6,790,934 (hereinafter "the '934 reference"). The Applicants respectfully traverse the rejection.

To sustain a rejection under 35 U.S.C. §102, a single reference must disclose each and every element of the claimed invention, the elements being configured in such a way as to fully disclose the claimed invention. The Applicants urge that the rejection of claims 1-9, 11-12, 18-19, 22-28, and 34-35 under 35 U.S.C. §102(e) as being anticipated by the '934 reference is unwarranted because the '934 reference does not disclose each and every element of the claimed invention. For example, the '934 reference does not disclose a method for removing a neutral or an ionic guanidine compound from an aqueous medium by an aqueous processing method wherein the aqueous medium is treated by one of the following techniques (a)-(d) in order to separate the guanidine compound from the aqueous medium. Thus, the '934 reference does not disclose removing a neutral or an ionic guanidine compound from an aqueous medium by (a) adsorption onto a carbonaceous adsorbent. Nor does the '934 reference disclose removing a neutral or an ionic guanidine compound from an aqueous medium by (b) adsorption onto a clay adsorbent. Further, the '934 reference does not disclose removing a neutral or an ionic guanidine compound from an aqueous medium by (c) filtration through a nanofiltration membrane. And lastly, the '934 reference does not disclose removing a neutral or an ionic guanidine compound from an aqueous medium by (d) removal of water and calcination. It is stressed that the claimed invention is directed to the removal of a neutral or an ionic guanidine compound from an aqueous medium by applying one of the techniques (a)-(d) listed above directly to the aqueous medium itself.

In the Office Action of May 8, 2006, the Examiner asserted that the limitations of claims 1, 22, 23, 31, 18, 34, 27 and 35 are disclosed in the abstract of the '934 reference, which mentions, but does not elaborate on, the purification of an aromatic polyether by "aqueous extraction", "filtration", or "a combination thereof". As the following discussion makes clear, the abstract of the '934 reference cannot be fairly read to disclose each and every limitation of the Applicants' broadest independent claim, claim 1, since nowhere in the cited reference does it disclose the recovery of a neutral or an ionic guanidine compound from an aqueous medium by applying one of the techniques (a)-(d) listed in claim 1 of the present application.

The Examiner asserted that the '934 reference at Column 2, lines 35-59 discloses the limitations of claims 1, 22, 23, 31, 18, 34, 27, 35. A careful reading of this section of the '934 reference reveals that the reference at Column 2, lines 35-59 discloses methods for purifying aromatic polyethers prepared in a water-immiscible solvent. The methods of purification disclosed do not include the recovery of the catalyst from water. There is no mention of the recovery of a neutral or an ionic guanidine compound from an aqueous medium by applying one of the techniques (a)-(d) listed in claim 1 of the present application. Thus, there the cited passage cannot be read to disclose the claimed invention.

The Examiner further asserted that the limitations of claims 1, 22, 23, 31, 18, 34, 27, 35 are disclosed at column 8, lines 24-43 of the '934 reference. Column 8, lines 24-43 describe phase-transfer catalysts which may be present in the polymer-containing mixture undergoing purification. The phase transfer catalysts disclosed include hexaalkylguanidinium salts. There is no mention, however, of the recovery of a neutral or an ionic guanidine compound from an aqueous medium by applying one of the techniques (a)-(d) listed in claim 1 of the present application. Thus, there the cited passage cannot be read to disclose the claimed invention.

The Examiner asserted further that the '934 reference at column 18, lines 36-68, column 19, second paragraph, and column 20, lines 1-30 discloses the phase transfer catalyst being extracted from an organic phase into water, and that the water containing

the catalyst or guanidine compound(s) may be treated with adsorbent, e.g. activated carbon or clay to remove the catalyst from the aqueous system. The Applicants urge that nowhere does the '934 reference disclose contacting an aqueous medium with an adsorbent to remove the catalyst from the aqueous medium.

The '934 reference at column 18, lines 36-68 describes a dry filtration step of a polymer-containing solution, in the complete absence of water, or in the presence of adventitious water, wherein the polymer-containing solution is quenched before or after the filtration step. This filtration step is carried out to remove salts such as alkali metal halide and residual monomer salts. Lines 49-53 of column 18 are relevant to catalyst recovery:

> "Following filtration, catalyst species and other non-filterable, water-soluble species may be separated and recovered via aqueous methods such as those employing a dynamic or static mixer or any of the aqueous configurations previously discussed."

The aqueous methods disclosed (dynamic mixers, static mixers) relate to methods of contacting a water-immiscible solvent containing an aromatic polyether with water as a means of removing water soluble components. Such techniques may produce an aqueous medium comprising a neutral or an ionic guanidine compound together with an alkali metal halide, but there is no teaching or suggestion that the neutral or ionic guanidine compound may be recovered from the aqueous medium by contacting the aqueous medium with an adsorbent such as carbon or clay. Nor is there any teaching or suggestion in the cited passage of the '934 reference of applying any one of the techniques (a)-(d) listed in claim 1 of the present application to the aqueous medium containing a neutral or ionic guanidine compound together with an alkali metal halide. Thus, the cited passage cannot be read to disclose the claimed invention.

The '934 reference at column 19, second paragraph is reproduced below and discloses applying aqueous processing techniques to an organic solution containing polymer and catalyst, but offers no specific guidance on removal of the catalyst from an aqueous medium once formed. The paragraph does disclose the removal of the catalyst from an organic solution by passage of the organic solution containing the catalyst through an ion exchange resin. The paragraph is silent with respect to recovery of catalyst from an aqueous solution.

> The permeate stream (from both the primary and, if necessary, the secondary filters) that is particle-free can be quenched with acid and sent for catalyst recovery. Because catalyst is typically more soluble in water than in ODCB, this stream can be processed with any of the aqueous methods described above. Similarly, catalyst can be processed via the dry method of ion exchange described hereinafter. Again, multiple combinations of aqueous and dry purification configurations are possible, depending on the relative process conditions and the desired level of purification.

The cited passage indicates that the aqueous phase "can be processed with any of the aqueous methods described above", but nowhere does the reference disclose treating an aqueous medium using one of techniques (a)-(d) disclosed in claim 1 of the present invention. Thus, column 19 second paragraph cannot be read to disclose the claimed invention.

Column 20, lines 1-30 describe the dry filtration of the polymer-containing organic solution through a suitable adsorption medium. Suitable adsorption media include, but are not limited to, alumina, silica, clay, montmorillontie, zeolite, charcoal, diatomaceous earth, fuller's earth, commercial filter agents such as CELITE, and other media typically employed in adsorption chromatography. The adsorption medium is used to adsorb essentially all or a portion of soluble species such as ionic catalyst species from

the water-immiscible solvent solution. The Applicants stress that the cited passage discloses only the removal of catalyst from an organic solution, and does not relate to an entirely different problem, the recovery of catalyst from an aqueous solution, for example a waste water stream containing the catalyst. The cited passage does not disclose the recovery of a neutral or an ionic guanidine compound from an aqueous medium by applying one of the techniques (a)-(d) listed in claim 1 of the present application. Thus, there the cited passage cannot be read to disclose the claimed invention.

On Friday August 25, 2006 the Examiner kindly assented to a telephone interview to discuss this case. During the interview, the Examiner asserted that Example 14 of the '934 reference discloses all of the limitations of claim 1. Example 14 is reproduced below:

> EXAMPLE 14
>
> An acid-quenched polyetherimide-containing mixture similar to that used in Example 1 (except diluted to 10% solids) was treated with water to agglomerate salt and filtered. About 90 grams of polyetherimide-containing solution was filtered at 90° C. a second time through a 10 micrometer pore size polytetrafluoroethylene membrane which had been loaded with 5 grams of silica gel (60-200 mesh). Filtration was repeated twice more at 90° C. through the same silica gel on the membrane. Analyses are summarized in Table 9.

Table 9

	HEG analyses	PEG analyses
Analyses Condition	ppm vs. polymer	ppm vs. polymer
before filtration	2227	614
After 1 st filtration	246	200
After 2 nd filtration	119	97

In the Examiner's view, the filtration through silica following treatment with water of the product mixture containing polyetherimide dissolved in orthodichlorobenzene and finely divided sodium chloride particles, constitutes "treatment of an aqueous medium" in a manner equivalent to one or more of the techniques (a)-(d) listed in claim 1 of the present application. In response, the Applicants urge that Example 14 does not disclose the filtration of an aqueous medium. The passage discloses the addition of water to an organic reaction mixture "to agglomerate salt" and that after the salt had been agglomerated, the organic medium comprising the agglomerated salt was filtered. While Example 14 is silent with respect to the amount of water added, the specification at column 15, lines 28-66 discloses both the theory and practice of salt agglomeration. Agglomeration is a technique in which water is added to an organic phase containing the alkali metal salt. The amount of water added is insufficient to dissolve the salt to form an aqueous medium but is sufficient to cause the finely divided dry salt particles present to associate into larger particles which are easier to filter from the organic reaction mixture. The Examiner noted that data presented in Table 9 (associated with Example 14) shows that the catalyst, HEG (hexaethyl guanidinium halide) is removed by the filtration step(s) described in Example 14 of the '934 reference. The Applicants stress that as a threshold matter, a mixture comprising a polymer dissolved in an organic solvent containing undissolved agglomerated salt particles should not be construed as an "aqueous medium" within the meaning of that term as used in the present invention. The Applicants' Examples make clear that the term "aqueous medium" refers to a solution which is comprised principally of water. Thus, the Applicants' Experimental Examples refer to "waste water samples" which are disclosed as being mostly water (Example 1 about 96% water, Example 2 about 96% water, Example 4 about 99% water) and "aqueous solutions" (See Example 9). Because Example 14 of the '934 reference does not disclose treatment of an aqueous medium as

the term is used in the present application, Example 14 cannot be read to disclose the recovery of a neutral or an ionic guanidine compound from an aqueous medium by applying one of the techniques (a)-(d) listed in claim 1 of the present application.

Thus, the rejection under 35 USC 102(e) of independent claims 1, 22 and 31, and the claims dependent therefrom, is unwarranted because at no point does the '934 reference disclose the recovery of a neutral or an ionic guanidine compound from an aqueous medium by applying one of the techniques (a)-(d) listed in claim 1 of the present application to said aqueous medium.

In view of the foregoing arguments, the Applicants urge that the rejection of claims 1-9, 11-12, 18-19, 22-28, 34-35 under 35 U.S.C. §102(e) be withdrawn.

Rejections Under 35 U.S.C. §103(a)

Claims 7, 15, 20-21, 26, 29-30, 37-38 were rejected under 35 U.S.C. §103(a) as being unpatentable over the '934 reference, or the '934 reference in view of Caringi et al. US Patent 6,235,934 (hereinafter "Caringi reference"). The Applicants respectfully traverse the rejections.

As a primary matter, claims 7, 15, 20-21, 26, 29-30, and 37-38 are claims dependent upon allowable independent claims 1, 22 or 31. Thus, claims 7, 15, 20-21, 26, 29-30, and 37-38 should allowable by definition. The Applicants thus urge that the rejection of claims 7, 15, 20-21, 26, 29-30, 37-38 under 35 U.S.C. §103(a) be withdrawn.

In view of the remarks set forth above, Applicants respectfully request reconsideration and allowance of claims 1-38. If the Examiner believes that a telephonic interview will help speed this application toward issuance, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,

Andrew J. Caruso
Reg. No. 48,520

General Electric Company
Building K1, Room 3A71
Niskayuna, New York 12309
August 30, 2006
Telephone: (518) 387-7354